

## **REMARKS**

The November 23, 2010 Official Action has been carefully considered. In view of the amendment submitted herewith and these remarks, favorable reconsideration and allowance of this application are respectfully requested.

At the outset, it is noted that a shortened statutory response period of three (3) months was set in the November 23, 2010 Official Action. Accordingly, the initial response period is due to expire February 23, 2011. This amendment and request for reconsideration is being filed before the expiration of the initial response period.

In the November 23, 2010 Official Action, claims 70-72 stand rejected under 35 U.S.C. §102(e) as allegedly anticipated by U.S. Patent 6,955,639 to Hainfeld et al. (hereinafter "Hainfeld").

The foregoing rejection is the sole ground set forth in the November 23 Official Action for refusing the present application.

In accordance with the present amendment, claim 70 has been amended by deleting the second "wherein" clause from the amendment submitted in response to the preceding Official Action. Claim 72 has been amended to state that the nanoparticle core comprises metal atoms selected from: gold, platinum, silver and copper. Support for this amendment is provided by original claim 4.

No new matter has been introduced into this application by reason of the present amendment, entry of which is respectfully requested.

For the reasons set forth below, applicants respectfully submit that the §102(e) rejection of claims 70-72 based on Hainfeld is plainly improper. This ground of rejection is, therefore, respectfully traversed.

**A.    The Impropriety of the 35 USC §102(e) Rejection of Claims 70-72 as  
Allegedly Anticipated by Hainfeld**

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Applicants respectfully take exception to the examiner's contention that Hainfeld anticipates the claimed subject matter.

First of all, Hainfeld is not at all concerned with a method for performing magnetic resonance imaging (MRI), to which claims 70-72 are directed. Rather, Hainfeld describes a

method of enhancing the dose and effectiveness of X-ray or other radiation in therapeutic regimes of ablating a target tissue such as a tumor. See Hainfeld's Abstract and the text under the headings "Field of the Invention" and "Summary of the Invention". Indeed, the word imaging does not appear in the 22 columns of description that make up Hainfeld's specification. The use of metal nanoparticles for radiation enhancement in connection with radiation therapy is completely different from the use of such particles as MRI contrast agents, and involves absorbing energy from photons, such as X-rays (see column 13, lines 37-65 of Hainfeld).

Secondly, this rejection is based on an isolated passage of Hainfeld that has little, if any, relevance to the invention claimed by applicants. Specifically, Hainfeld states that gadolinium ions, complexed with a shell of DTPA (diethylenetriaminepentaacetate) are commonly used as a MRI contrast agent (see column 10, lines 39-42 of Hainfeld). However, the cited passage is plainly incidental to the description of Hainfeld's method of enhancing radiation effects using metal nanoparticles. It is simply an example of how a shell material may alter the toxicity of a core, and does not relate to an embodiment of Hainfeld's invention. More to the point, gadolinium ions complexed with an anionic shell via charge interaction do not anticipate a claim that calls for a core of metal atoms covalently linked to a plurality of ligands, as claim 70 does.

In summary, Hainfeld fails to teach the use of nanoparticles in a method of MRI. The only mention of MRI in Hainfeld is of a conventional MRI contrast agent comprising gadolinium ions bound to DTPA by ionic interaction.

For all of the above-stated reasons, Hainfeld fails as anticipatory prior art with respect to the method for performing MRI set forth in claims 70-72. Accordingly, this ground of rejection should be withdrawn upon reconsideration.

The presently amended claims are also patentably distinguishable from Fahlvik and Annan, which are of record herein and were cited as allegedly providing evidence of unpatentability with respect to subject matter claimed in claims 70-72 in the preceding Official Action.

Fahlvik does not describe nanoparticles in which the metallic core is covalently linked to a plurality of ligands. On the contrary, Fahlvik describes particles comprising a metal oxide core which is coated with an agent that provides ionic interactions with the core (see, in particular, column 3, lines 32-38 and column 6, lines 61-63 of Fahlvik).

As for Annan, this reference describes particles that are very different from those called

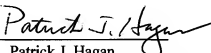
for in the present claims. The core of the Annan particles is polymeric and gadolinium ions are bound or sequestered by deprotonated acidic groups of the polymeric matrix (see, e.g., column 5, lines 20-24 of Annan). There is no disclosure in Annan of a metal core covalently linked to a plurality of ligands, as previously acknowledged by the examiner. Nor is there any disclosure in Annan of a core of less than 2.5 nm in diameter which the examiner has also acknowledged.

**B. Conclusion**

In view of the present amendment and foregoing remarks, it is respectfully requested that the rejection set forth in the November 23, 2010 Official Action be withdrawn and that this application be passed to issue, and such action is earnestly solicited.

Respectfully submitted,

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